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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,437

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Hideyuki Ueda

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MCDERMOTT WILL & EMERY LLP  
600 13TH STREET, NW  
WASHINGTON, DC 20005-3096

EXAMINER

HAN, KWANG S

ART UNIT

PAPER NUMBER

1795

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,437	<b>Applicant(s)</b> UEDA ET AL.	
	<b>Examiner</b> Kwang Han	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/7/06</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

2. The drawings are objected to because page 14 of the specification refers to disposed end plates 8a and 8b; in Figure 1 of the drawings, the end plates are designated simply as 8. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman et al. (US 6124054) in view of Grot (US 6641862).

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Regarding claim 1, Gorman et al. is directed towards a fuel cell system comprised of the following:

- a fuel cell (Column 2, Lines 27-43) comprising an anode (12, Figure 1), a cathode (20), and an electrolyte (8) interposed between the anode and cathode ,
- a purifying apparatus (69, Figure 6) comprising a catalyst layer that purifies an effluent discharged from the anode (Column 2, Lines 5-11),
- a flow path (70) having an inlet from which effluent discharged from anode is introduced (Column 3, Line 66-Column 4, Line 2),
- a flow path having an inlet (75) from which air is introduced and an outlet (72), and
- the effluent discharged from anode is passed through the purifying apparatus and discharged from the outlet (Column 3, Line 66-Column 4, Line 2).

Gorman et al. is silent towards the particular structure within the purifying apparatus such as having a porous sheets and having flow paths disposed on both sides of a porous sheet.

Gorman et al. and Grot are analogous art because both deal with the problem of dispersing reactant material to a catalyst for a fuel cell.

Grot teaches the use of diffusion layers (15, 15A) on opposing sides of a catalyst layer region (Figure 3, Stage E; Column 3, Lines 21-26) in a fuel cell for the benefit of

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permitting diffusion of reactant gas to the catalyst layer for both gas flow channels (column 1, lines 36-41).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use two diffusion layers as taught by Grot in combination with the effluent and air flow path of Gorman's purifying device for the benefit of permitting diffusion of reactant gas' to the catalyst layer for both gas flow channels. It is well known in the art to use diffusion layers to help evenly distribute reactant gas to the catalytic material.

Regarding claim 4, the applicant is directed towards the discussion for claim 1.

Regarding claim 5, Gorman discloses a fuel cell system where the air introduced into the other flow path includes air discharged from the cathode (Column 4, Lines 2-5).

7. Claims 2, 3, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman et al. in view of Grot as applied to claim 1 above, and further in view of Corey et al. (US 6632553).

Regarding claims 2 and 8, Gorman et al. and Grot are silent towards a direct type fuel cell using organic fuel supplied to the anode and air to the cathode.

Corey et al. teaches a fuel cell with methods for managing effluent products for a direct methanol fuel cell for the benefit of not directly exhausting effluents (Column 3, Lines 5-28).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Gorman in view of Grot's purifying apparatus in Corey's direct

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methanol fuel cell for the benefit of providing a method of effluent management and control which does not directly exhaust the effluents into the environment.

Regarding claim 3, the discussion concerning Gorman et al., Grot, and Corey et al. as discussed above are herein incorporated. Gorman et al. discloses effluent which is discharged from the anode and is collected and purified without being supplied to the anode again (Figure 1; Column 4, Lines 1-2).

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman et al. in view of Grot as applied to claim 1 above, and further in view of Haga et al. (US 5330956).

Regarding claim 6, Gorman et al. and Grot are silent as to the temperature inside the purifying apparatus.

Gorman et al. and Haga et al. are analogous art because both discuss the operation of a platinum catalytic combustion device for the reduction of an exhaust.

Haga et al. teaches a combustion catalytic reduction device with a platinum catalyst (Column 3, Lines 39-45) that operates at a low temperature range (75°C to 200°C) for the benefit of reducing operation costs (Column 4, Lines 28-45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to operate the purifying apparatus of Gorman modified by Grot in a low temperature range because platinum is active at low temperatures and has the added benefit of reducing operation costs as taught by Haga.

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It has been held that where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (MPEP 2144.05).

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gorman et al. as applied to claim 1 above, and further in view of Sims et al. (US 5106588).

The teachings of Gorman et al. and Grot as discussed above are herein incorporated. Gorman discloses a purifying apparatus which is mechanically similar to catalytic converters used in automobiles (Column 2, Lines 5-11).

Sims et al. teaches the use of a platinum catalyst in a catalytic converter for converting exhaust from an automobile [Abstract].

It would have been obvious to one of ordinary skill in the art at the time of the invention to have a catalyst for the purifying apparatus comprised of platinum since it is well known in the catalyst converter art that platinum is a highly reactive and commonly used material for catalytic purposes as taught by Sims et al.

#### ***Contact/Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on (571) 272-1293. The fax phone



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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./

Examiner, Art Unit 1795

/SUSY N TSANG-FOSTER/

Supervisory Patent Examiner, Art Unit 1795